

SELECTIVELY REMOVABLE TIE-DOWN ANCHOR

1 Your Petitioner, RICHARD C. HUGG, a citizen of the United States and a
resident of the State of Iowa, whose post office address is 3775 "O" Avenue, Westside,
Iowa 51467, prays that Letters Patent may be granted to him for the invention set forth
5 in the following specification:

BACKGROUND OF THE INVENTION

1. FIELD OF THE INVENTION

This invention relates to a selectively removable tie-down anchor for a tie-down
strap or tie-down chain. More particularly, this invention relates to a selectively
10 removable tie-down anchor for a flatbed trailer which may be selectively positioned at
any place along substantially the entire length of a flatbed trailer or the like.

2. DESCRIPTION OF THE RELATED ART

Tie-down devices have been used for many years for tying down cargo resting
15 on the bed of flatbed trailers, stepdeck trailers and straight trucks. As used herein, the
word "vehicle" will include all types of trailers and trucks wherein cargo is secured to the
beds thereof. Prior to applicant's invention of U.S. Patent No. 6,626,621, the known tie-
down devices included a plurality of winches which were each selectively longitudinally
movable on a shaft positioned at one side of the trailer bed. One end of a strap was
20 inserted into a winch and passed over the cargo with the other end of the strap normally
being secured to the other side of the trailer. If the winch supporting shafts of the prior
art extended the entire length of the trailer, they would serve their purpose. However, in
some types of trailers, it was not possible to run the winch supporting shaft the entire

length of the trailer beds due to wheels, toolboxes positioned between wheels, etc.
Therefore, prior to applicant's invention of U.S. Patent No. 6,626,621, in certain trailer configurations, it was impossible to use a tie-down strap winch for several feet along the length of the trailer.

U.S. Patent No. 6,262,621 discloses a selectively removable tie-down strap winch assembly for a trailer or truck which is believed to represent a significant advance in the art. Even though the tie-down strap winch assembly of applicant's U.S. Patent No. 6,626,621 works exceptionally well, it is still necessary to anchor or secure the other end of the strap to the other side of the trailer. Additionally, when tie-down chains are utilized, it is necessary to secure the opposite ends of the chains to opposite sides of the trailer. Heretofore, it is believed that the prior art has not provided a convenient way of securing the tie-down straps and tie-down anchors to the trailer.

SUMMARY OF THE INVENTION

A selectively removable tie-down anchor is provided for securing one end of a tie-down strap or tie-down chain to the trailer bed. The tie-down anchor of this invention is ideally suited for use with winch assemblies such as disclosed in applicant's U.S. Patent No. 6,626,621. Assuming that a tie-down strap is being used with a winch assembly for tightening the same, the winch assembly is positioned at one side of the cargo supporting bed with the anchor assembly of this invention secured to the other side of the cargo supporting bed. The anchor assembly includes a substantially vertically disposed stem portion which has a hook member movably mounted thereon which is adapted to selectively releasably engage the lower end of one of the side walls

1 at the other side of the bed when the stem portion of the anchor assembly is inserted
downwardly into one of the pocket areas at the other side of the bed. The anchor
assembly includes a pair of upstanding, horizontally spaced-apart plates mounted on
the upper end of the stem portion with a strap or chain receiver mounted on and
5 extending between the pair of plates. The receiver on the anchor assembly is generally
J-shaped including a first tie-down portion having upper and lower ends secured to and
extending between the spaced-apart plates and a generally U-shaped tie-down portion
at the lower end of the first tie-down portion. The U-shaped tie-down portion has a
notch formed therein. If one end of the tie-down strap has a J-shaped or U-shaped
10 hook thereon, the hook on the strap is placed over the upper end of the first tie-down
portion with the strap extending therefrom beneath the receiver and thence over the
receiver towards the other side of the trailer. If the anchor is being used to secure one
end of a tie-down chain, the chain may be looped around the receiver with the hook of
15 the chain being secured to one of the links of the chain. The chain may also be secured
to the anchor by inserting one of the links thereof in the notch formed in the receiver
with the hook of the chain being positioned above the J-shaped second tie-down portion
of the anchor.

20 It is therefore a principal object of the invention to provide a selectively
removable tie-down strap anchor which may be used with either a tie-down strap or a
tie-down chain.

1 A further object of the invention is to provide an invention of the type described
which may be removably positioned in pocket areas along substantially the entire length
of the trailer bed.

5 Still another object of the invention is to provide a device of the type described
wherein the device includes a spring-loaded hook member which may engage the lower
end of a side rail, the lower end of a stand-off plate, or the lower end of the side of the
trailer.

10 Yet another object of the invention is to provide a selectively removable tie-down
anchor for a trailer which may be inserted between the side rail and the side of the
trailer bed or into a stake pocket.

These and other objects will be apparent to those skilled in the art.

BRIEF DESCRIPTION OF THE DRAWINGS

15 Figure 1 is a rear perspective view of a trailer having a plurality of winch
assemblies such as shown in U.S. Patent No. 6,626,621 mounted thereon;

Figure 2 is a perspective view of the winch assembly of the '621 patent;

Figure 3 is a perspective view of the winch assembly of the '621 patent mounted
between one side of the trailer and a side rail;

20 Figure 4A is a side elevational view illustrating the hook member of the invention
of the '621 patent having been rotated 180° from the position of Figure 3;

Figure 4B is a side elevational view of the embodiment of Figure 3;

25 Figure 4C is a front elevational view of a further embodiment of the invention and
which shows the invention of the '621 patent inserted into a stake pocket;

Figure 5 is a perspective view of the tie-down anchor of this invention;

Figure 6 is a partial sectional view of the anchor of this invention;

Figure 7 is a perspective view illustrating a tie-down chain secured to the tie-down anchor; and

Figure 8 is a view similar to Figure 7 except that the tie-down chain is secured to the anchor in a different manner than that shown in Figure 7.

DESCRIPTION OF THE PREFERRED EMBODIMENT

The numeral 10 refers generally to a generally Y-shaped winch assembly as described in U.S. Patent No. 6,626,621. Winch assembly 10 includes a stem or post portion 12 which is channel-shaped or C-shaped and which includes sides 14 and 15 and back wall 16. In one embodiment, the stem portion 12 is positioned so that the "opening" of the stem portion 12 faces laterally outwardly, as seen in Figures 2, 3 and 4B. A hook member 18 is pivotally mounted between the sides 14 and 15 and is movable between latched and unlatched positions, as seen in the drawings. A spring 20 urges hook member 18 to its latched position. Hook member 18 could also be urged to the latched position by a counterweight assembly. The lower end of the hook member 18 includes a hook portion 22 having an upwardly and outwardly extending portion 24.

A pair of upstanding and horizontally spaced-apart plates 25 and 26 are secured to the upper end of stem portion 12 and have a strap receiver or drum mechanism 28 rotatably mounted therein and extending therebetween. A tubular member 30 is secured to one end of the strap receiver mechanism 28 and includes registering

1 openings 32 formed therein adapted to receive one end of a pry bar or the like therein.
The other end of the strap receiver mechanism 28 is provided with a conventional winch
ratchet assembly 34.

5 The winch assembly 10 of the '621 patent is designed to be used with a stepdeck
or flatbed trailer of the type such as illustrated in the drawings and generally referred to
by the reference numeral 36. The winch assembly 10 could also be used to secure
cargo on the bed of a straight truck. Trailer 36 includes a bed portion 38 having
opposite sides or side areas 40 and 42 having upper and lower ends. Side rails 44 and
46 are positioned outwardly of the side areas 40 and 42, respectively, by conventional
10 stand-offs which define pocket areas 50 between the side areas 40 and 42 and the side
rails 44 and 46. Some trailers are also provided with stake pockets 52.

When it is desired to utilize a tie-down strap to secure cargo on the bed of the
trailer, the winch assembly 10 is properly positioned with respect to the cargo and the
15 stem portion 12 is inserted downwardly into one of the pocket areas 50 so that the hook
portion 22 faces outwardly (Figure 3). As the stem portion 12 is being inserted
downwardly into the pocket area 50, the portion 24 of hook member 18 engages the
respective side rail (44) to move the hook member 18 from its normally latched position
to its unlatched position. Once the hook portion 22 is below the lower end of the side
20 rail, the hook member 18 moves outwardly, due to the spring 20 acting upon hook
member 18, to engage the lower end of the side rail to anchor the winch assembly 10 in
position with respect thereto (Figure 3).

1 One end of a tie-down strap 54 is secured to side area 42 of trailer 36 as will be
described hereinafter. The strap 54 is extended over the cargo to be tied down and the
other end of the strap 54 is inserted into strap receiver mechanism 28 between the rods
56 thereof. The tubular member 30 is then rotated through the use of a pry bar or the
5 like to cause the strap 54 to be wound upon the strap receiver mechanism 28 until the
cargo is securely tied down with the winch ratchet assembly 34 preventing unwinding
rotational movement of the strap receiver mechanism 28 in conventional fashion.

10 In some trailer configurations, it may be desirable to secure the hook portion 22
of hook member 18 to the lower end of the side area of the trailer, as seen in Figure 4A.
In that case, the stem portion 12 would probably have to be lengthened and the
channel-shaped stem portion 12 would be rotated 180° with respect to the plates 25 and
26. Further, the hook member 18 could be rotated 90° from the position illustrated in
Figure 4 to the position of Figure 4C so that the hook portion 22 of hook member 18
15 engages the lower end of one of the plates of the stake pockets 52.

The numeral 70 refers to the selectively removable tie-down anchor of this
invention which is ideally suited for use with the Y-shaped winch assembly of the '621
patent or any other type of winch assembly utilized with tie-down straps. The tie-down
20 anchor 70 of this invention may be used also to anchor one end of a tie-down chain or
strap.

Anchor 70 includes a stem or post portion 72 which is identical to stem or post
portion 12 of the winch assembly 10 and which may be removably secured to one side
of the trailer or vehicle bed in the same manner as stem portion 12, as described
25

1 hereinabove. Stem portion 72 includes a spring-loaded hook member 18' identical to
hook member 18 in U.S. Patent No. 6,626,621. A pair of spaced-apart upstanding
plates 74 and 76 extend upwardly from base 78 which is welded to the upper end of
stem portion 72. The numeral 80 refers to a generally J-shaped strap or chain tie-down
5 receiver which is welded to plates 74 and 76 and which includes an inclined first
receiver portion 82 having an upper end 84. Receiver 82 also includes a second
receiver portion 86 at the lower end of first receiver portion 82 which is generally
U-shaped. Receiver portion 86 is provided with a notch or slot 88 formed therein.

10 The anchor 70 may be used to anchor one end of a strap 90 or a chain 92. Strap
90 normally has a J-shaped hook 94 at one end thereof. Chain 92 has a hook 96 which
is connected to the end-most chain link 98 in conventional fashion. When the anchor is
to be used to anchor one end of a strap 90, the stem portion 72 is mounted on the trailer
in the same manner as stem portion 12 of the winch assembly 10 is mounted. The end
15 of the strap 90 is inserted between the plates 74 and 76 beneath receiver portion 86
(Figure 5) and the hook 94 is positioned on the upper end 84 of receiver portion 82, as
illustrated in Figure 6. The strap 90 is then extended around receiver portion 86 and
over the upper end 84 of receiver portion 82, over the cargo, to the winch assembly at
the other side of the bed, as seen in Figure 6. If the strap 90 should become slightly
20 loosened during use, the hook 94 will tend to remain connected to the upper end 84 of
receiver portion 72 rather than becoming disconnected therefrom as often occurs in the
prior art.

1 If anchor 70 is going to be used to anchor one end of a chain 92, the chain 92
may be connected thereto in one of two ways. First, the chain 92 may be wrapped
around the receiver 80, as illustrated in Figure 8, with the hook 96 being secured to one
of the links 98. Secondly, the chain 92 may be secured to the anchor 70 by positioning
5 one of the links 98 within the notch or slot 88, as illustrated in Figure 7. The
engagement of the link 98 with the receiver portion 86 on opposite sides of notch or slot
88 prevents the chain 92 from disconnecting from the anchor 70.

Thus it can be seen that a unique tie-down anchor has been provided which
enables either a tie-down strap or chain to be secured thereto in a quick and efficient
10 manner.

Thus it can be seen that the invention accomplishes at least all of its stated
objectives.